Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

F. M.
F. M.
1,941
L6F22

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

LIBRARY
RECEIVED
★ AUG 7 1941 ☆
U. S. Department of Agriculture

FARM SIZE AS A GUIDE TO PLANNING IN THE TRI-COUNTY SOIL CONSERVATION DISTRICT

By
Raymond B. Hile
Junior Agricultural Economist

Washington, D. C.
November 1940

565351

ACKNOWLEDGMENTS

This study was conducted under the supervision and guidance of T. S. Thorfinnson, Leader, Division of Farm Management and Costs, Lincoln, Nebraska.

Acknowledgment is made to the County Agents of Ziebach, Meade, and Perkins Counties, South Dakota, the Soil Conservation Service, the South Dakota State Land Use Planning office, the Supervisors of the Tri-County Soil Conservation District for their cooperation and assistance, to Millard Solem and Edward Paul of the Division of Land Economics, and others in the Bureau of Agricultural Economics.

319438

FARM SIZE AS A GUIDE TO PLANNING IN THE TRI-COUNTY SOIL CONSERVATION DISTRICT

By Raymond B. Hile, Junior Agricultural Economist
Bureau of Agricultural Economics

CONTENTS

	Page
Summary and Conclusions	2
Introduction	5
General Description of the Area	9
Economy of the Area	14
Selected Operators for Special Study	22
Suggestions Relative to an Economic Unit for this Area	27
Size of Farm in Relation to Age of Operator and Size of Family	32

SUMMARY AND CONCLUSIONS

Distress in areas similar to the Tri-County District is certain to come unless farms are of a size to return an income in favorable years sufficient to provide reserves for less favorable years.

In a general way the Tri-County District may be considered similar to much of the Great Plains so far as variations in size of farms and percentage cultivation are concerned. Annual precipitation is uncertain and high winds are not uncommon, both contributing to make the area one of high risk. This area, like many in the Great Plains, has suffered severe drought and much land which was formerly cultivated is now idle. Thirty percent of the cultivated land in this area was idle in 1937. Livestock numbers were also greatly depleted by 1937, owing largely to the shortage of feed supplies.

It is generally agreed by many that an increase in size of the smaller units would be desirable. The question might logically be raised as to what constitutes a desirable size of unit for this area. Whatever the size, the unit should return a sufficient income to maintain a family through good years and through years of low income or complete failure as well.

One indication of what constitutes a desirable size of unit is furnished by the results of a study of 40 successful operators. Only one member of this group operated less than 880 acres. The majority of the group operated much larger units. Forty percent of these farmers were located on units ranging in size from 1,040 acres to 1,880 acres. A high percentage of these operators began farming in this area on units of roughly 240 acres. A rapid increase in average size came soon after settlement and a gradual increase has occurred ever since.

A further criterion relative to size of farm is presented in a group of budgets showing income possibilities of common sizes of farms up to 1,000 acres.

Farms Need At Least One Section

A farm of less than 640 acres located in this, or similar areas, would appear to be too small to provide adequately for a family. According to budget estimates a 640-acre farm with 31 percent cultivation might be expected to return $474.45 after all charges have been deducted.

In view of a study of 40 successful operators and the above budget estimates, it would appear that a unit between 640 and 880 acres could be considered about the minimum size required to provide for a family in this area. This applies only to areas where 30 percent cultivation is feasible.

Assuming a minimum-sized unit of 720 acres, a problem of adjustment which would require a great deal of careful planning immediately presents itself. As shown in this report, 87 farms or 41 percent of the total number of farms are 720 acres or less in size.

Any adjustment program must necessarily consider the special family situations which may exist. A large percentage of the operators on small farms in this area are either young operators who have no children, or older operators, whose children are mature and who have lower living expenses. It seems reasonable that these groups may be able to make a living on a small farm and are therefore no immediate problem. It was found that 54 percent of the small farms were occupied by families of three persons or less. Bachelors and childless couples comprised 31 percent of this group. Young and middle-aged operators should receive first consideration if more land is provided for small operators. Size of family and present size of farm are further facts to consider in determining the need for further land on the part of these families. Perhaps most consideration should be given young and middle-aged operators on small farms, who have families larger than average for the area.

Undoubtedly the management of the Conservation District will wish to consider the farm-management problems in developing a program of adjustment. If farms smaller than 720 acres can not be expected to succeed in most cases, then the problem of size of farm must receive some consideration. When programs of adjustment are planned for small farms, these cases should be carefully studied in order to ascertain whether special circumstances exist which justify the maintenance of an under-sized unit. In cases where the acreage operated is insufficient to support the family, an attempt should be made to assist the operator in securing more land. Unless the underlying economy of the area is sound from the standpoint of size and type of operating unit, efforts to improve the agriculture of the district in terms of soil conservation and moisture-retaining devices can not be expected to be fruitful.

INTRODUCTION

The lure of free land in the early years of settlement in certain parts of the Great Plains largely overshadowed any consideration of the productive possibilities of these areas. As a result, many pioneers settled on farms that later proved too small to provide for the farmer and his family, and it was necessary for many of them to move to new locations or to return to the localities from which they had come. Some of the remaining farms became larger by addition of vacated land (fig. 1). Most of the remaining farms changed little in size because of more desirable locations in the area, greater financial reserves, customs traceable to other areas, or lack of adequate information concerning the problems facing farmers in the area.

Since the time of settlement, this area has had periods of insufficient rainfall and serious drought. These periods have been very irregular, resulting in uncertain planning on the part of farm operators. Many of the larger units have failed to provide sufficient reserves during favorable years to carry through periods of drought. On smaller units, it was practically impossible to produce sufficient supplies to provide a reserve during the less favorable years.

Planning groups in many areas of the Great Plains have become interested in this size-of-farm problem. Questions commonly asked include: What size of unit is necessary to provide adequately for a family over a period of years? How much of a unit should be devoted to cultivation? What type of agriculture should be followed in a particular area?

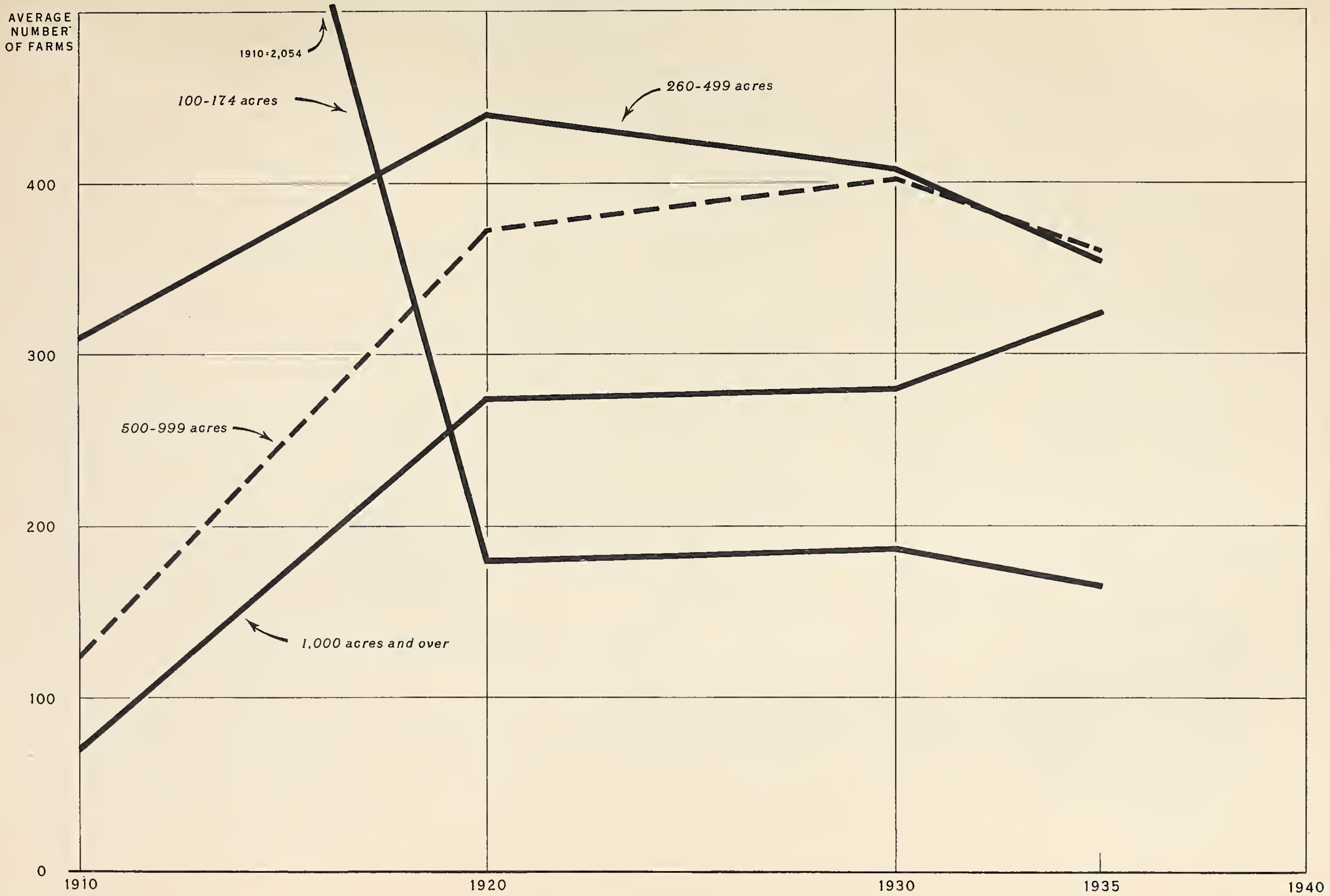
This study is concerned with one area of the Great Plains, the Tri-County Conservation District located in western South Dakota (fig. 2). The district includes 365,255 acres or roughly 16 townships, eight of which lie in Ziebach County, 6 in Meade County, and 2 in Perkins County.

The study was undertaken at the request of the regional office of the Soil Conservation Service as part of a preliminary approach to planning an adjustment program for the district.

Procedure of Study

The general approach was to prepare a factual picture of the district from the viewpoint of operating units and to show income possibilities of various-sized farms. Incomes are considered adequate if in addition to family living they provide sufficient reserves in good years to carry through periods of less favorable production. While no fixed unit can be laid down as a minimum size and type sufficient to assure such an income, it is possible to make estimates. It is proposed to do this by the use of budgets and by analyzing the operations of a group of operators, designated as successful by residents of the district. Budgets were prepared for common sizes of farms of less than 1,000 acres.

Fig. 1. AVERAGE NUMBER OF FARMS BY SIZE GROUPS, 1910-35
MEADE, PERKINS, AND ZIEBACH COUNTIES, SOUTH DAKOTA

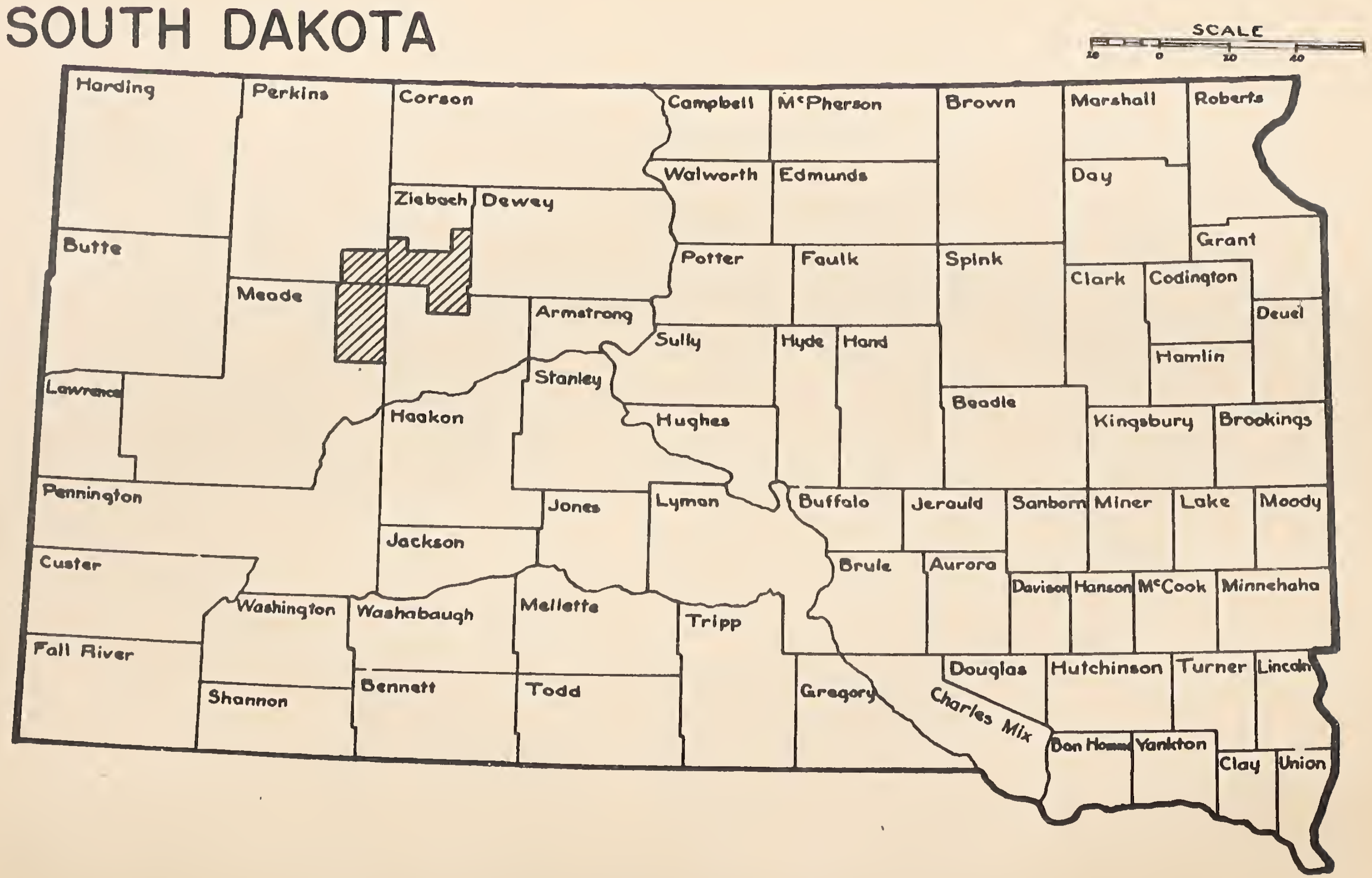


U. S. DEPARTMENT OF AGRICULTURE

NEG 38656 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE I

Figure 2. Location of the Tri-County Conservation District, South Dakota



Sources and Types of Data Collected

Secondary sources were drawn upon quite extensively to furnish the factual information for this study. From the Agricultural Adjustment Administration records were taken data on farm and ranch organizations, locations of farmsteads, Agricultural Adjustment Administration payments, and land use. Court-house records were used for obtaining livestock numbers and tax delinquency. Data on amounts of Government subsidies received in the district were taken from the Farm Security Administration records. In addition to these records, a group of detailed field schedules were obtained from the successful operators living in the district.

GENERAL DESCRIPTION OF THE AREA

Soils

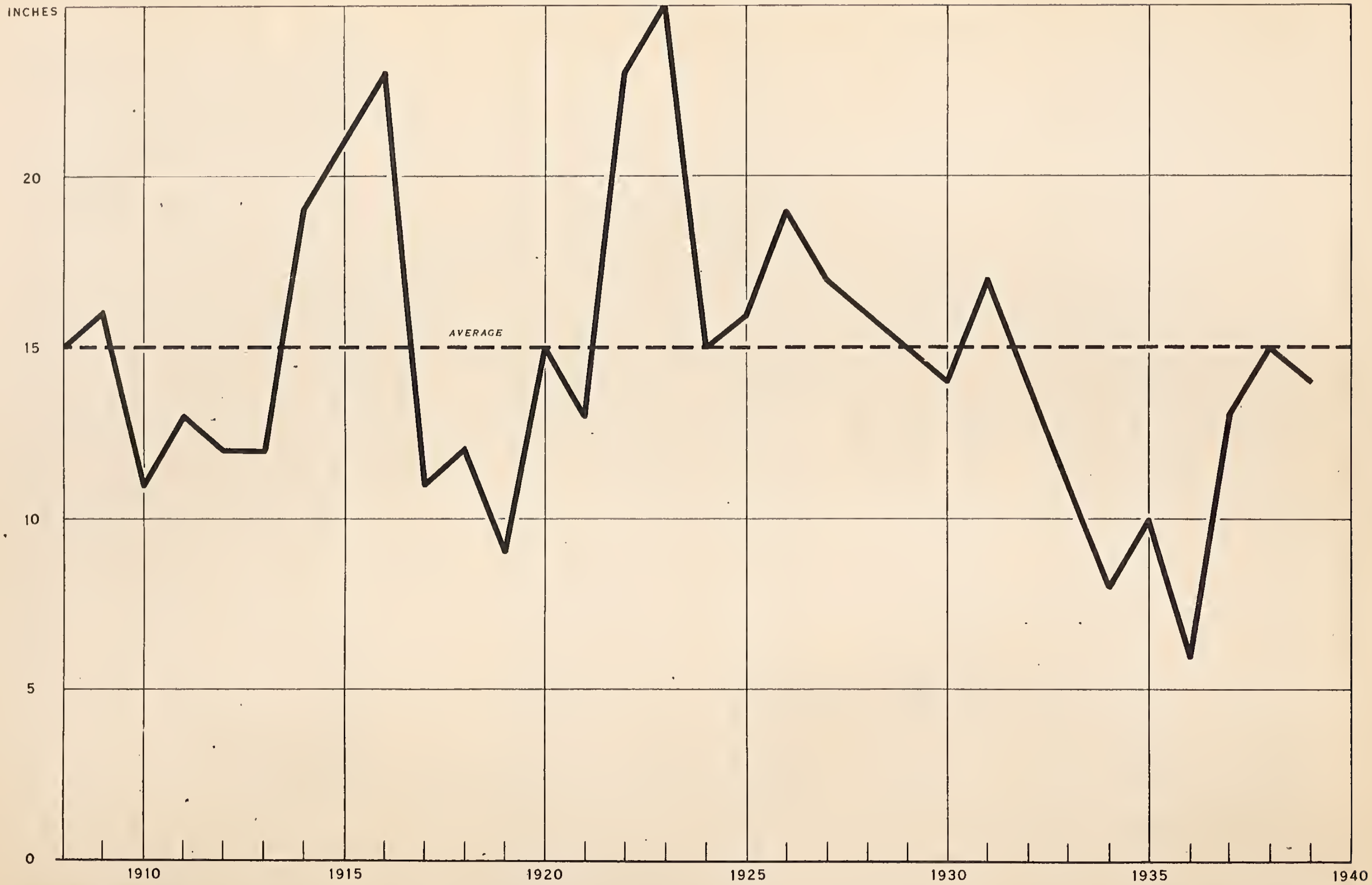
Roughly, two townships in the eastern part of the district are made up of "farming land" according to land classification by the United States Geological Survey. This land is described as tillable and suitable for the production of grain cereals. The area includes the town of Dupree. Immediately west of this land, still in Ziebach County, is quite a large area classed as farming-grazing land. Two townships in the south extension of the district in Meade County are also classed as farming-grazing land. Recommended use of this land is combined farming and grazing. The remainder of the district is grazing-forage land to be used principally as grazing, but having supplemental uses for growing forage and for producing grain in very good years.

Precipitation

Annual precipitation for the area averages about fifteen inches. Extreme variations have occurred (fig. 3). The average from 1908 to 1939 was 15 inches with a high of 25 inches in 1923 and a low of 6 inches in 1936. There is a distinct cyclical trend, though irregular, in these data. In 10 of the 30 years, precipitation averaged over 15 inches. Fifteen of these years averaged less than 15 inches. Only 1 year since 1932 received 15 inches of precipitation. This is by far the longest period of below average precipitation since 1908. From one-half to three-fourths of the annual precipitation normally occurs during the growing season.

"Winter temperatures average 15 to 20 degrees and fall as low as -40 to -50 degrees Fahrenheit. Summer temperatures average 65 to 75

FIG. 3. ANNUAL PRECIPITATION BY YEARS, 1908-39
PERKINS COUNTY, SOUTH DAKOTA



U. S. DEPARTMENT OF AGRICULTURE

NEG. 38657 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 3

degrees and may rise to over 100 degrees for short periods."/1

Growing Season

The length of the growing season determines to a large extent the kinds of crops which may be successfully grown. The average growing season for the district is 115 to 125 days, which is sufficiently long for maturing most farm crops.

Topography

The topography is almost wholly the result of geologic erosion. It is generally level to undulating, with occasional butte formations. Areas along the main drainage ways are hilly and cut-up.

Tax Status

Roughly 57 percent of the district was classed as taxable land on July 1, 1938, (fig. 4). Thirty-six percent is non-taxable and 7 percent is rural-credit land.

Over one-half of the taxable land was delinquent, 26 percent was subject to tax deed, and 14 percent had been delinquent for 2 years or more. Fifty-eight percent of the district area was publicly owned or subject to tax deed (fig. 5). This left 42 percent of the area in the hands of private and corporate owners.

Government Assistance

There was not a great deal of difference in the amounts of governmental assistance /2 received by different sized farms, when computed on a per-person basis. It was found in a study concerned with this subject that the larger farms, over 880 acres in size, received $1,660 per farm, as compared with the farms smaller than this, which received $1,356. The larger farms had larger families. When the assistance is computed on a per-person basis it is found that each person on the small farm received $352, as compared with

---

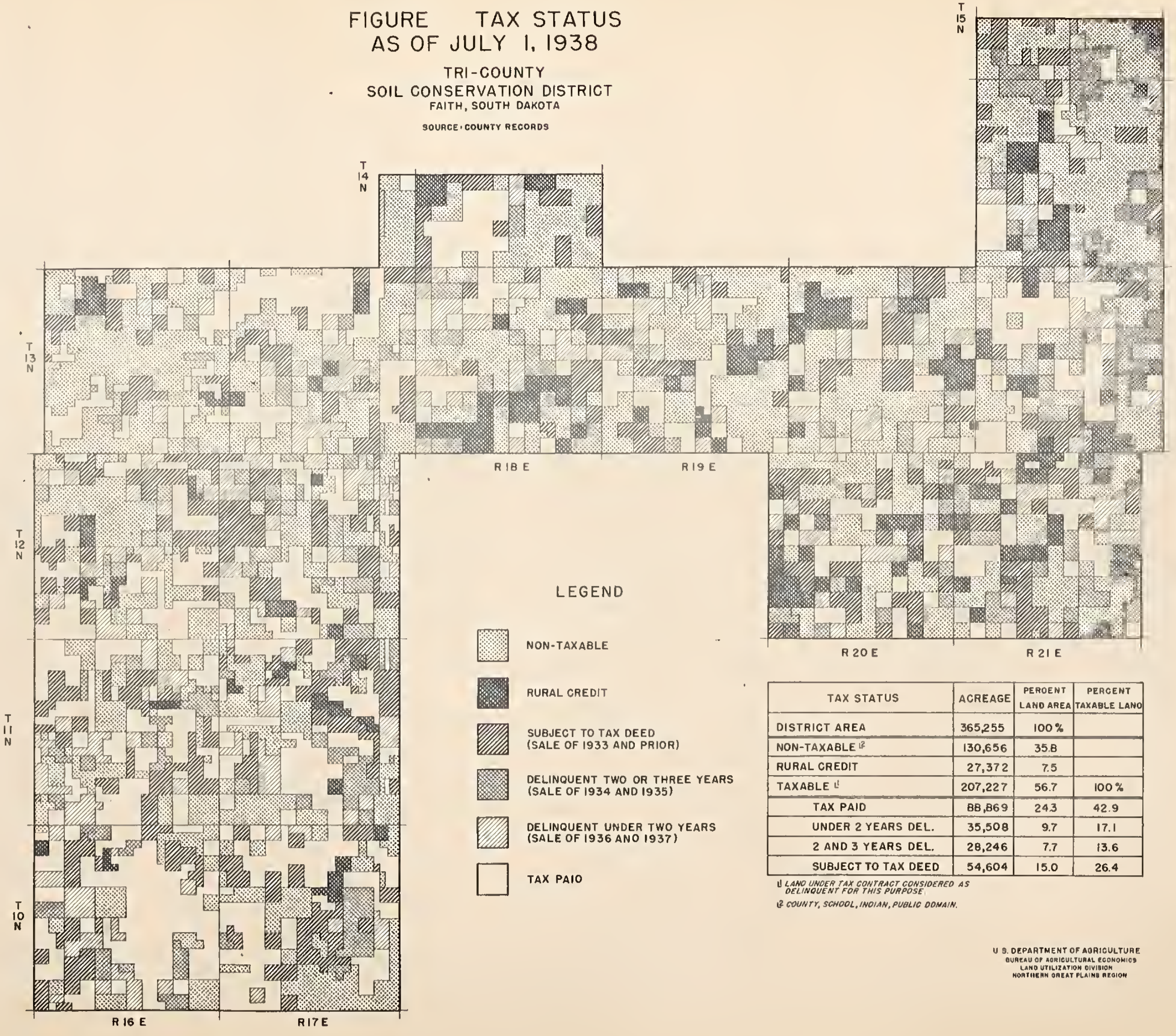
/1 Muehlbeier, John, and Johnston, Ralph E., Some Land Use Problems in Northwestern South Dakota, page 10, 1938.

/2 Includes emergency grants, work relief wages, feed and seed loans, rehabilitation loans, Agricultural Adjustment Administration benefit payments, etc.

FIGURE TAX STATUS
AS OF JULY 1, 1938

TRI-COUNTY
SOIL CONSERVATION DISTRICT
FAITH, SOUTH DAKOTA

SOURCE: COUNTY RECORDS


T 14 N
T 15 N
T 13 N
T 12 N
T 11 N
T 10 N
R 16 E
R 17 E
R 18 E
R 19 E
R 20 E
R 21 E
LEGEND
NON-TAXABLE
RURAL CREDIT
SUBJECT TO TAX DEED (SALE OF 1933 AND PRIOR)
DELINQUENT TWO OR THREE YEARS (SALE OF 1934 AND 1935)
DELINQUENT UNDER TWO YEARS (SALE OF 1936 AND 1937)
TAX PAID

TAX STATUS	ACREAGE	PERCENT LAND AREA	PERCENT TAXABLE LAND
DISTRICT AREA	365,255	100 %	
NON-TAXABLE [2]	130,656	35.8	
RURAL CREDIT	27,372	7.5	
TAXABLE [1]	207,227	56.7	100 %
TAX PAID	88,869	24.3	42.9
UNDER 2 YEARS DEL.	35,508	9.7	17.1
2 AND 3 YEARS DEL.	28,246	7.7	13.6
SUBJECT TO TAX DEED	54,604	15.0	26.4

[1] *LAND UNDER TAX CONTRACT CONSIDERED AS DELINQUENT FOR THIS PURPOSE.*

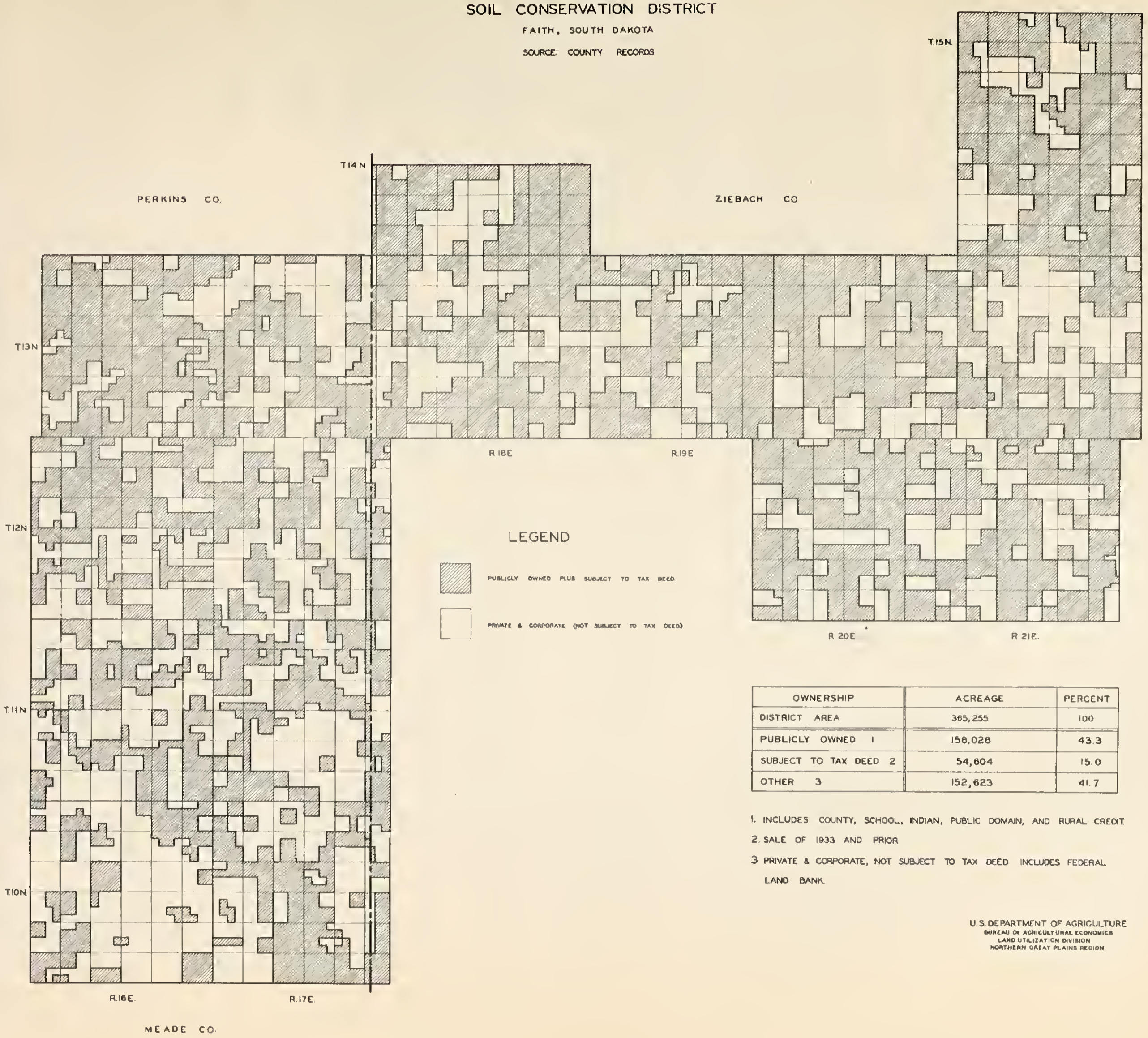
[2] *COUNTY, SCHOOL, INDIAN, PUBLIC DOMAIN.*

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS
LAND UTILIZATION DIVISION
NORTHERN GREAT PLAINS REGION

FIGURE 4

FIGURE LAND PUBLICLY OWNED AND SUBJECT TO TAX DEED
AS OF JULY 1, 1938

TRI-COUNTY
SOIL CONSERVATION DISTRICT
FAITH, SOUTH DAKOTA
SOURCE COUNTY RECORDS



OWNERSHIP	ACREAGE	PERCENT
DISTRICT AREA	365,255	100
PUBLICLY OWNED 1	158,028	43.3
SUBJECT TO TAX DEED 2	54,604	15.0
OTHER 3	152,623	41.7

1. INCLUDES COUNTY, SCHOOL, INDIAN, PUBLIC DOMAIN, AND RURAL CREDIT
2. SALE OF 1933 AND PRIOR
3. PRIVATE & CORPORATE, NOT SUBJECT TO TAX DEED INCLUDES FEDERAL LAND BANK.

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS
LAND UTILIZATION DIVISION
NORTHERN GREAT PLAINS REGION

FIGURE 5

$338 or $14 more per person than those on large farms./3 Larger families on the larger farms accounted for this group receiving more assistance in the form of emergency grants.

ECONOMY OF THE AREA

Number and Size of Farms

In the district 213 operators who live there use 90 percent of the land included in this study. The remaining 10 percent of the land is operated by 22 farmers whose headquarters are outside the district boundaries (table 1). Included in the 213 operators is a group which may be designated as part-time farmers. These 43 farmers have occupations in addition to farming and have therefore been given separate consideration in this report. After allowing for the part-time operators there remain 170 regular, full-time farmers who depend upon their farms exclusively for maintenance. Table 2 shows in detail the size distribution of these two groups.

It will be noted that the part-time operators tend to concentrate upon the smaller sized farms. Over one-half of the group operate farms of 400 acres and less, and 35 percent control units of 240 acres or less.

Table 1. - Relationship of the land in the district to the operators, Tri-County Conservation District, South Dakota, 1937

Item	Operators		Acres operated in the district	
	Number	Percent	Number	Percent
Operators whose land is wholly within the district	178	76	204,545	67
Operators living in the district who operate additional land outside	35	15	69,091	23
Operators living outside of the district who operate additional land within	22	9	29,660	10
Total	235	100	303,296	100

Agricultural Conservation Program records, 1937

/3 Thorfinnson, T. S., Cronin, F. D., and Hile, R. ., Size of Farm in Relation to Family Requirements in the Northern Great Plains, Table V, 1938.

An inspection of the distribution of 170 regular operators shows that a majority of them tend toward larger units: 54 percent operate units larger than 880 acres, compared with 35 percent of the part-time farmers; 24 percent of the regular operators farm units of 560 acres or less. This size of operating unit was considered too small for permanency by a group of operators in this general area in 1936. /4 Only 2 of the group of 34 Ziebach County operators recommended less than 640 acres. As will be shown later, a large majority of a group of successful operators, so designated because of their stability in the area, operated farms 880 acres or larger in size in 1937.

Table 2. - Proportion of part-time operation by size groups, Tri-County Conservation District, South Dakota, 1937

Size groups	Part-time /1 operators		Other /2 operators		All operators	
	Number	Percent	Number	Percent	Number	Percent
0 - 240	15	35	10	6	25	12
241 - 400	7	16	18	11	25	12
401 - 560	3	7	12	7	15	7
561 - 720	3	7	19	11	22	10
721 - 880	0	0	19	11	19	9
881 - 1040	2	5	5	3	7	3
1041 - 1880	6	14	50	29	56	26
1881 - 2880	3	7	19	11	22	10
2881 - 5280	3	7	13	8	16	8
5281 and Over	1	2	5	3	6	3
Total	43	100	170	100	213	100

/1 Operators whose headquarters are within the district and who have income aside from farming or ranching.

/2 Operators whose headquarters are within the district, and who depend wholly upon their farm and ranch for income.

Agricultural Conservation Program records, 1937.

/4 Muehlbeier, John, and Johnston, Ralph E., Some Land Use Problems in Northwestern South Dakota, fig. 15, 1938.

The smaller farms are concentrated in the eastern extension of the district near the town of Dupree (fig. 6). This concentration is caused principally by the presence of a heavier soil more adaptable to crop production. Another concentration of small farms is found near Faith in the northwest part of the district. These farms are operated for the most part by persons receiving income from sources other than farming.

Type of Farm /5

Fifty-four percent of the operating units in the district are included in the farm type, 25 percent are combination farming-ranching units, and 21 percent are ranches, (fig. 7). A large majority of the farms are located in the eastern part of the area where the farm income is made up largely of sales of cash-grain, principally wheat. Combination farming-ranching units occupy the area immediately surrounding the farms. The ranches in the area are found mostly in the western part of the district lying in Meade and Perkins Counties. Here the soil is better adapted to this type of agriculture.

Acreage of Grass and Crops

Considerable variation exists in the amount of land cultivated. For the district as a whole 17 percent was reported as cultivated. This figure includes idle land that has not returned to native sod. In the eastern extension of the district, near the town of Dupree, cultivation runs as high as 36 percent, while in an area in the western part of the district, cultivation declines to 2 percent.

A study of the crop organization of 170 regular operators in this area indicates that 31 percent of their cultivated land was left idle in 1937. The extreme droughts of recent years were largely responsible for this high percentage. Wheat occupied the most important position of any crop grown during the 1937 crop year. There was an average of 55 acres of wheat per farm, or 22 percent of the cultivated land. Oat production was important on the larger units, principally as a feed crop (table 3). Summer-fallowed land occupied quite an important place in the cropping system. This was owing quite largely to severe drought and compliance with the agricultural conservation

---

/5 For the purpose of this classification a farm is considered any unit from which one-half or more of the estimated income arises from the sale of cash-grain. A ranch is any unit from which one-half or more of the estimated income arises from the sale of livestock. The estimated income from combination units arises from sale of cash-grain and livestock, with approximately one-half arising from each source.

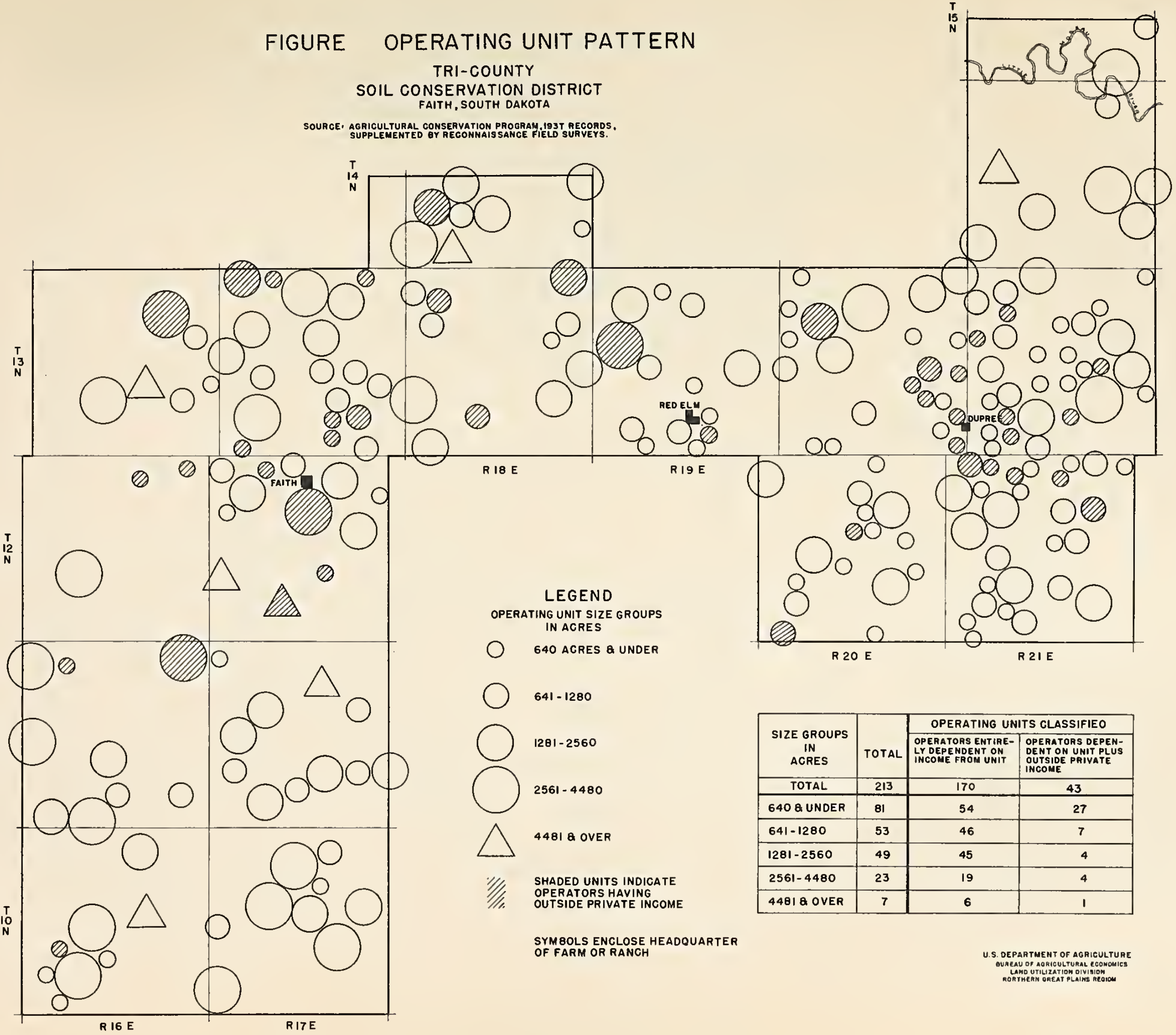


FIGURE OPERATING UNIT PATTERN

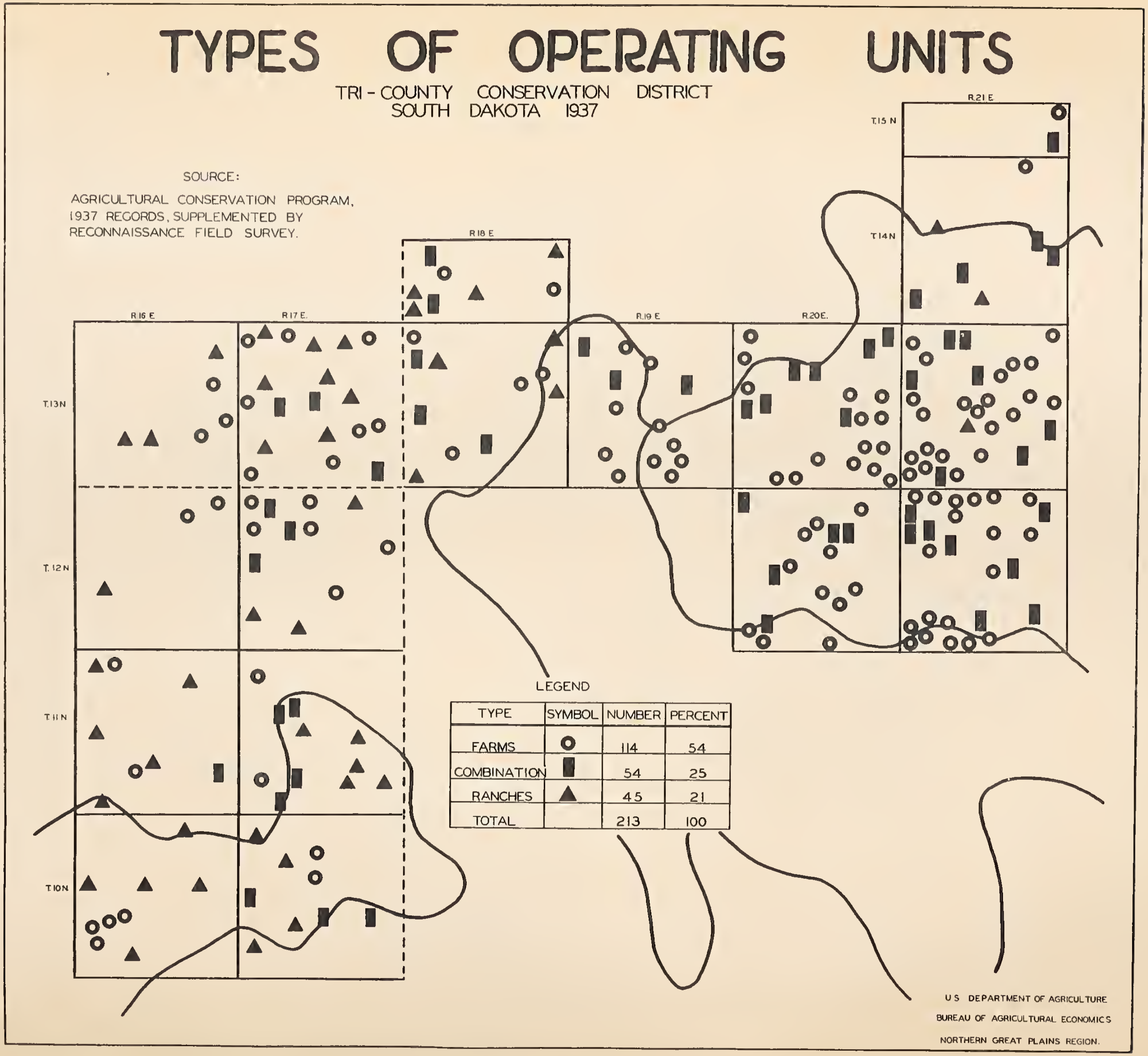
TRI-COUNTY
SOIL CONSERVATION DISTRICT
FAITH, SOUTH DAKOTA

SOURCE: AGRICULTURAL CONSERVATION PROGRAM, 1937 RECORDS, SUPPLEMENTED BY RECONNAISSANCE FIELD SURVEYS.

SIZE GROUPS IN ACRES	TOTAL	OPERATING UNITS CLASSIFIED	
		OPERATORS ENTIRELY DEPENDENT ON INCOME FROM UNIT	OPERATORS DEPENDENT ON UNIT PLUS OUTSIDE PRIVATE INCOME
TOTAL	213	170	43
640 & UNDER	81	54	27
641 - 1280	53	46	7
1281 - 2560	49	45	4
2561 - 4480	23	19	4
4481 & OVER	7	6	1

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS
LAND UTILIZATION DIVISION
NORTHERN GREAT PLAINS REGION

FIGURE 6


TYPES OF OPERATING UNITS
TRI - COUNTY CONSERVATION DISTRICT
SOUTH DAKOTA 1937
SOURCE:
AGRICULTURAL CONSERVATION PROGRAM, 1937 RECORDS, SUPPLEMENTED BY RECONNAISSANCE FIELD SURVEY.
R.16 E.
R.17 E.
R.18 E.
R.19 E.
R.20 E.
R.21 E.
T.15 N
T.14 N
T.13 N
T.12 N
T.11 N
T.10 N
LEGEND
U S DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS
NORTHERN GREAT PLAINS REGION.

TYPE	SYMBOL	NUMBER	PERCENT
FARMS	○	114	54
COMBINATION	▮	54	25
RANCHES	▲	45	21
TOTAL		213	100

FIGURE 7

Table 3. Average Crop and Livestock Organization, 170 Farms and Ranches, Tri-County Conservation District, South Dakota, 1937.

Size Group	Number of Units	Average size of Unit	Average acreage per farm											Number per farm			
			Wheat	Oats	Barley	Rye	Corn	Other Crops	Tame Hay	Idle	Fallow	Total cultivated land	Grass land	Cattle	Sheep	Hogs	Horse
		Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	No.	No.	No.	No.
0-240	10	162	17	2	1	0	4	2	9	24	11	70	92	3	0	0	2
241-400	18	324	39	6	2	8	4	0	22	43	26	150	174	6	1	0	2
401-560	12	485	44	1	0	0	9	0	18	63	22	157	328	3	8	0	2
561-720	19	649	61	8	8	2	18	2	28	79	22	228	421	4	0	1	3
721-880	19	812	32	9	8	1	5	0	38	86	29	208	604	4	0	0	2
881-1040	5	949	40	12	9	0	11	20	39	13	28	172	777	8	0	1	4
1041-1880	50	1,444	94	15	17	5	20	2	58	92	62	365	1,079	11	10	1	4
1881-2880	19	2,322	55	7	5	1	15	2	30	85	45	245	2,077	15	17	5	7
2881-5280	13	3,890	17	22	4	0	3	7	85	97	40	275	3,615	23	9	2	9
5281 plus	5	12,594	10	29	0	0	0	0	54	62	6	161	12,433	29	705	0	11
Total	170	1,624	55	11	8	3	12	2	41	75	38	245	1,379	10	27	5	4

Source:-Agricultural Conservation Program, 1937 records.

program. According to the 1937 conservation program records, 16 percent of the cultivated land in the district was summer fallowed.

Livestock Numbers

Numbers of livestock were greatly depleted by drought. Cattle and sheep were the major types of livestock. Cattle numbers ranged from an average of 3 head on the small farms to an average of 29 on the larger sized farms. Sheep were found in significant numbers only on the larger units.

SELECTED OPERATORS FOR SPECIAL STUDY

The remaining part of this report deals with 40 operating units that were picked as successful. In addition to the study of these operators, income capabilities of various-sized farms will be shown by a budget approach.

In order to study tested organizations as a guide to planning desirable operating units for the area, 40 units were chosen. The operators of these units were selected by residents of the district on the basis of their success as farmers and ranchers. While there were other equally successful operators in the district, the operators included in this sample were considered representative. Detailed farm schedules were secured from these operators.

Forty-two percent of the operators in this group have resided in the district from 26-30 years (table 4). The shortest period of tenure was 8 years and the longest 42 years.

That a reasonably large acreage is necessary for economic stability in this area is shown by the study of these 40 successful operators who have lived in the area for a good many years and remained solvent. Over one-half of this group began farming in the area on units of 240 acres or less. By 1937, this group reported 2,239 acres as the average size of farm (table 5). Increase in size was general among

Table 4. - Distribution by number of years in area, 40 successful operators, Tri-County Conservation District, South Dakota, 1937

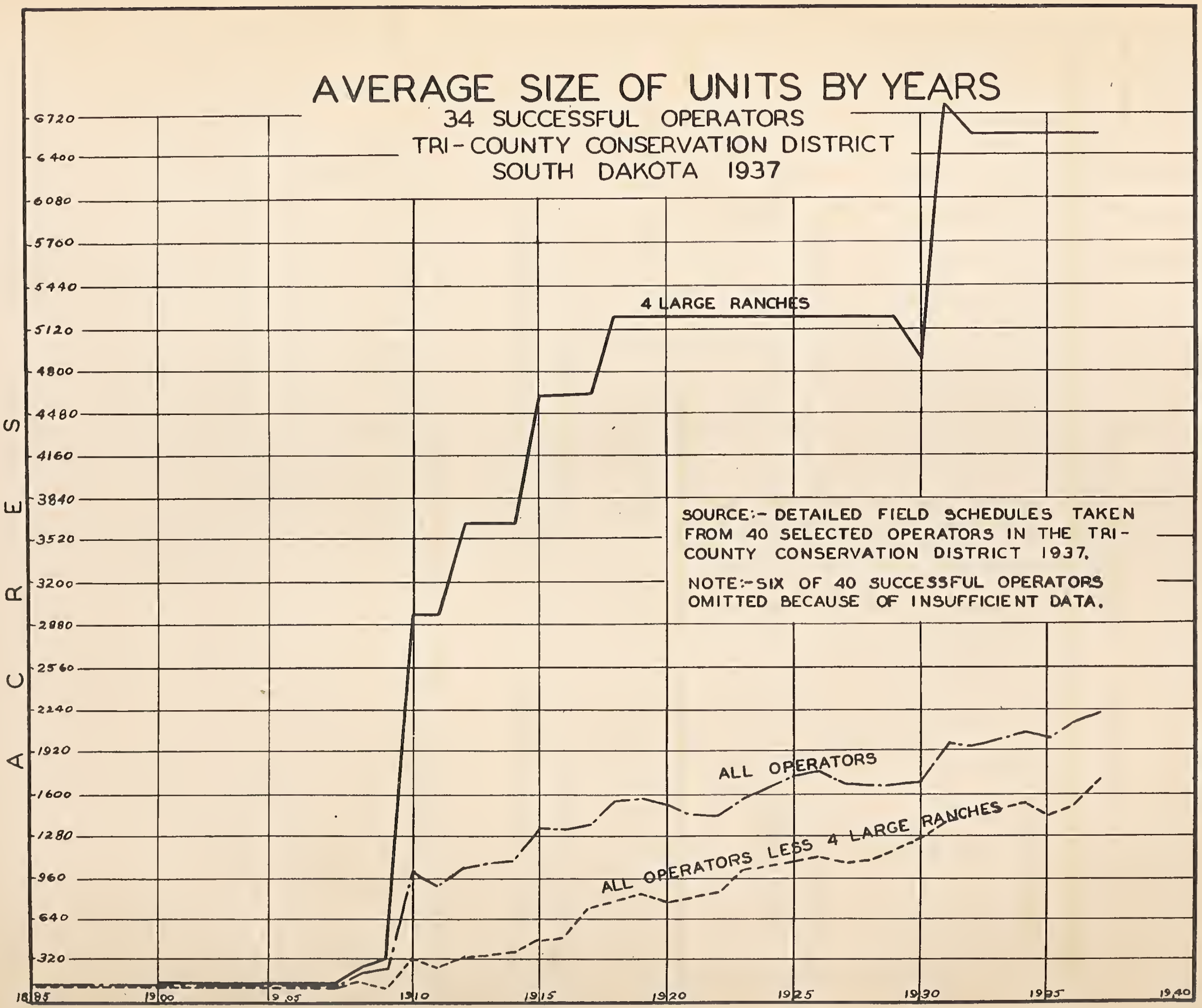
Number of years in area	Number of operators	Percent of total number
Less than 11 /1	5	12
11 - 15	1	3
16 - 20	9	22
21 - 25	3	8
26 - 30	17	42
Over 30 /2	5	13
Total	40	100

/1 One of these operators had been in the area for 8 years, two of them for 9 years, and two for 10 years.

/2 The longest period of tenure in this group was 42 years.

Detailed field schedules, secured from 40 selected operators, 1937.

34 of the group of 40 operators from time of settlement in the area. The increase was slight until about 1909 after which a very marked increase took place (fig. 8). Growth was especially rapid among four large ranches. This group showed an average increase of about 2,640 acres during the year 1909-10.



SOURCE:- DETAILED FIELD SCHEDULES TAKEN FROM 40 SELECTED OPERATORS IN THE TRI-COUNTY CONSERVATION DISTRICT 1937.

NOTE:- SIX OF 40 SUCCESSFUL OPERATORS OMITTED BECAUSE OF INSUFFICIENT DATA.

FIGURE 8

Table 5. - Distribution of 40 successful operators according to size of unit upon which they began farming in this area, Tri-County Conservation District, South Dakota

Size of unit	Operators		Average size 1937
	Number	Percent	Acres
0 - 240	21	52.5	2,239
241 - 400	6	15.0	2,030
401 - 560	3	7.5	1,530
561 - 720	1	2.5	5,320
721 - 880	1	2.5	1,920
881 and Over	4	10.0	2,030
Unknown	2	5.0	2,230
Open Range	2	5.0	10,180
Total	40	100.0	2,600

Detailed field schedules taken from 40 selected operators in the Tri-County Conservation District, 1937.

In 1937, only 1 of the 40 operators was farming a unit smaller than 880 acres and only 4 were located on units of 1,040 acres or less. The greatest number were found on units of 1,041 to 1,880 acres (table 6).

Table 6. - Size distribution of successful operators and other operators, Tri-County Conservation District, South Dakota, 1937

Size groups	More successful units [1]		Other operating units		Total number of operating units	
	Number	Percent	Number	Percent	Number	Percent
0 - 240	0	0	25	14	25	12
241 - 400	0	0	25	14	25	12
401 - 560	1	2	14	8	15	7
561 - 720	0	0	22	13	22	10
721 - 880	0	0	19	11	19	9
881 - 1040	3	8	5	3	8	4
1,041 - 1,880	16	40	39	23	55	26
1,881 - 2,880	9	22	14	8	23	11
2,881 - 5,280	8	20	8	5	16	7
5,281 & Over	3	8	2	1	5	2
Total	40	100	173	100	213	100

[1] Selected by local people as some of the more successful operators. Detailed farm records were obtained from this group.

Agricultural Conservation records, 1937 farm and range program.

Equity of Successful Operators

That the successful operators have been able to cope with the uncertainties of the area is shown by the equity which each owns in his business. Over one-half of the successful operators reported an equity of 76 percent to 100 percent (table 7). Only 10 percent of the operators showed an equity of 25 percent or less.

Comparison with Other Operators in the District

A comparison of size between the 40 successful operators and 173 other operators in the district reveals that while only 1 of the former group operated a farm of 560 acres or less there were 64 of the latter group operating units of these sizes. The 64 operators respresented 36 percent of the total. Sixty percent of the "other operators" were operating units 880 acres or less in size as compared with 2 percent of the successful operators (table 6).

Table 7. - Distribution of 38 successful operators according to/1 equity owned, Tri-County Conservation District, South Dakota, 1937

Equity owned	Operators	
Percent	Number	Percent
25 or less	4	10
26 to 50	6	16
51 to 75	8	21
76 to 100	20	53
Total	38	100

/1 Information incomplete for 2 operators.

Detailed field schedules taken from 40 selected operators in the Tri-County Conservation District, South Dakota, 1937.

SUGGESTIONS RELATIVE TO AN ECONOMIC UNIT FOR THIS AREA

The fact that only one of the successful operators was located on a unit of less than 880 acres is not offered as conclusive evidence that a farm smaller in size is inadequate to withstand the uncertainties of this area; however, it is considered a fair indication that this may be true, especially in view of the fact that a large percentage of the operators began farming in this area on much smaller units and have considerably increased their units to the present time (tables 5 & 6 and fig. 8). The modal group of farms of successful, as well as other operators in the district, is found in the size group 1,041 to 1,880 acres (table 6). The question might reasonably be raised whether this would not be the size necessary to meet, most adequately, the requirements of a minimum-sized unit for the area. It is difficult to answer such a question definitely.

A partial answer is proposed through the use of budgets which indicate the income possibilities of farms of common sizes below 1,000 acres.

A study of the operations of 40 successful operators living in the district showed that only one of these farmers operated less than 880 acres. All of these operators began farming in this area on much smaller units and gradually increased the size up to the present time. That only one of these operators occupied a farm of less than 880 acres is significant with regard to income capabilities of smaller units in this area. It is not suggested from this that a farm smaller than 880 acres would be considered inadequate for this area; however, it does cast some suspicion upon smaller units.

To indicate more specifically the income capabilities of farms of different sizes, the following group of budgets have been prepared. In order to establish a more tenable starting point, it was considered advisable to interview operators living on the various-sized farms and obtain data relative to their organizations and farm operations. Typical cases were selected from common-size groups below 1,000 acres.

Organizations, as reported by the farmers, were used as a basis for calculating these budgets. County average yields and State average prices were used in all cases. Expenses reported by the farmers were used as a general guide in the expense-account calculations. The budgets were all computed on an owner-operated basis, charging the farm 5 percent interest on invested capital, 6 percent depreciation on equipment, and 3 percent depreciation on the value of buildings.

The results of the budget estimates indicate that a quarter-section farm with 47 percent of the unit cultivated, could be expected to return $94.50 after all charges are made (table 8). This same farm would show an income of $303.50 when only the cash expenses are deducted from the gross cash income. A 320-acre farm would be expected to return $206.00 after all expenses are deducted, and the 480 acre unit would return about $355.00 on the same basis. It is not until the one-section farm is reached that a reasonably satisfactory return is received. This is on the assumption that about $400 would be the minimum required to provide for a family. A detailed budget for a 640-acre farm is presented in table 9.

Table 8. - Income capabilities of farms of different sizes, Tri-County Soil Conservation District, South Dakota

Size of farm (acres)	160	320	480	640	800	960
Percent cultivated	47	30	30	31	22	30
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Income above cash expense	303.50	547.00	751.60	965.75	1,148.25	1,271.87
Income above cash expense & depreciation	249.50	453.00	670.60	845.75	993.25	1,154.87
Income above cash exp. depreciation, and interest on investment	94.50	206.00	355.60	474.45	583.25	718.22

The results of the study of 40 successful operators showed that only one of the group was operating a farm smaller than 880 acres. This fact is not considered to be indicative of what constitutes a minimum-sized unit; however, it should be given some consideration.

If it is assumed that a farm between 640 and 880 acres in size constitutes a minimum size for the area, a problem of adjustment which would require careful study and planning is immediately presented. As shown in another section of this report, 87 farms, or 41 percent of the total number in the area, are 720 acres or less in size. Most of this group would be displaced if a program of adjustment, based upon the above size requirements, were carried out.

Budgeting small farms for greater returns is a possibility which seems to merit consideration. Some adjustments that will increase income on small farms without increasing the acreage of land operated may be feasible.

Special circumstances of families now on small units may justify their small size as adequate. Bachelors and families whose children have grown and left homes, would necessarily have to be given special consideration in any adjustment program. Cases of young farmers just getting started would also have to be given additional attention.

Considerable land which should be retired to grass is now being plowed in this area. Consideration should be given to retirement of this poor cropland and the corresponding adjustments in types and sizes

Table 9. - Recommended budget for a 640-acre farm in the Tri-County Soil Conservation District, South Dakota, owner-operated, 31 percent cultivated

Item	PRODUCTION AND SALES						EXPENSES	
	Acres	Yield	Production	Amount Sold	Price	Value	Kind	Amount
Land use	No.	Bu. or Ton	Bu. or Ton	Bu. or Ton	Dols.	Dols.	Cash expense	Dollars
Corn	24	15 bu.	360 bu.	0			Hired labor	75.00
Oats	5	20 bu.	100 bu.	0			Tractor expense	150.00
Wheat	123	8 bu.	984 bu.	705 bu.	.80	564.00	Machinery upkeep	20.00
Barley	33	20 bu.	660 bu.	0			Twine and threshing	126.75
Tame Hay	16	1¼ Ton	20 T.	0			Taxes & ins.	65.00
Permanent past	439						Automobile (farm share) /1	50.00
Total	640					564.00	Vet. & Medicine	10.00
							Total cash exp.	496.75

Livestock	Number	Production	Amount Sold	Price	Value
			Lbs. & Dozen	Dols.	Dols.
Milk cows	12		2,700	3.50	94.50
Calves	12				
1-year olds	12				
2-year olds	3		7,200	6.50	468.00
Butterfat		125# per cow	1,200	.25	300.00
Hogs		Home use only			
Hens	100				
Eggs		6 doz. per hen	200	.18	36.00
Horses	5				
		Total livestock income			898.50
		Total gross income			1,462.50

Non-cash expense	
Depreciation	
Equipment	60.00
Buildings	60.00
Total	120.00

INVESTMENT	
Land, 640 Acres	$ 3,327.00
Buildings	2,000.00
Machinery & Equipment	565.00/2
Livestock	1,534.00
	$ 7,426.00

SUMMARY		
Total gross Income		$1,462.00
Cash expense	$ 496.75	
Income I		965.75
Depreciation	120.00	
Income II		845.75
Interest on investment	371.30	
Income III		474.45

/1 Includes depreciation.

/2 Includes $200 automobile.

of operating units. Unless the underlying economy of the area is sound, from this standpoint, efforts to improve the agriculture of the district in terms of conservation of soil and moisture, cannot be expected to be fruitful.

SIZE OF FARM IN RELATION TO AGE OF OPERATOR AND SIZE OF FAMILY [4]

A classification of the operators as to age on 69 small farms and 52 large farms shows that a large percentage of the operators on small units are in the age groups 31-40, 51-60, and 61 and over, while a larger percentage of the large farm operators are in the age groups 41-50, and 51-60 (table 10).

Table 10. - Distribution of farms by age of operator on 121 farms in the Tri-County Conservation District, South Dakota, 1938

Age of operator	Operators on					
	Small farms 1/		Large farms 2/		All farms	
Years	Number	Percent	Number	Percent	Number	Percent
20 - 30	9	13	2	4	11	9
31 - 40	16	23	10	19	26	21
41 - 50	11	16	14	27	25	21
51 - 60	18	26	19	37	37	31
61 and over	15	22	7	13	22	18
Total	3/69	100	3/52	100	3/121	100

1/ These operators were on farms of 880 acres or less.
2/ These operators were on farms and ranches varying in size from 881 acres to 5,320 acres.
3/ Information on age not available for 8 small operators and 2 large operators.

The concentration of operators of small farms in younger and older age groups would suggest that these operators have either reached the retirement age or are just getting established on their farms. In either case the requirements for larger units would not seem imperative, as the older operators have matured their families and have lower living expenses and the younger operators have not as yet reached the peak of living requirements.

---

[4] The table on pages 27, 28, and 29, were taken from a report Size of Farm in Relation to Family Requirements in the Northern Great Plains, by T. S. Thorfinnson, F. D. Cronin, and R. B. Hile, published as a U.S. Department of Agriculture mimeograph in 1939.

The distribution of operators of small farms, by size of family, indicates that 54 percent were occupied by families of 3 persons or less (table 11). Bachelors are located on 15 percent of the farms, childless couples on 16 percent, and families of 3 persons on 23 percent of the farms. This would indicate that over one-half of these farms were occupied by families of less than the average size for the area (4.6 persons). It would seem that many of these operators of small farms might be able to make a living on units smaller than the minimum size recommended for an average family in this area.

Table 11. - Distribution of farms by size of family, 69 1/ small 2/ farms, Tri-County Conservation District, South Dakota, 1938

Number of persons in family	Number of farms	Percentage	Cumulative Percentage
	Number	Percent	Percent
1	10	15	15
2	11	16	31
3	16	23	54
4	5	7	61
5	12	17	78
6	7	10	88
7	3	5	93
8	2	4	97
9	1	1	98
10	1	1	99
11	1	1	100
Total	69	100	

1/ No information available for 8 operators.

2/ Farms of 880 acres or less.

Farm Security Administration.

The relation of size of farm to size of family on 69 small farms is shown in table 12. In this table the bachelors and childless couples are presented in one group and families of 3 persons or more in the second group. Of the 21 families in the first group, 57 percent were located on farms ranging in size up to 400 acres. Only 27 percent of the families of 3 persons or more were on this same size of farm. The families of 3 persons or more tend to concentrate on the larger farms. Fifty-six percent were located on farms ranging in size from 561 to 880 acres.

Table 12. - Relation of size of farm to size of family, 69 /1 small farms /2, Tri-County Conservation District, South Dakota, 1938.

Size of farms	Bachelors and childless families		Families of three or more		All families	
Acres	Number	Percent	Number	Percent	Number	Percent
0 - 240	5	24	3	6	8	11
241 - 400	7	33	10	21	17	25
401 - 560	2	10	8	17	10	14
561 - 720	4	19	13	27	17	25
721 - 880	3	14	14	29	17	25
Total	21	100	48	100	69	100

/1 Information not available for 8 families

/2 Farms of 880 acres or less.

Farm Security Administration.

With regard to size of farm in relation to age of operator and size of family, it may be said in conclusion that:

(1) Operators over 60 years of age are operating smaller farms than the younger operators. The adjustment which seems necessary in size of farm may not be as difficult in view of this fact.

(2) Size of farm might be considered satisfactory for the operators of about 30 percent of the small farms. This group is composed of bachelors and childless couples.

(3) Fifty-four percent of the small farms were occupied by families of three or less persons.

(4) In dealing with an adjustment program, the family situation must be given consideration.

In all cases size of family and age of operator must be considered in relation to size of farm. Special family situations, such as young farmers, childless couples, bachelors, and aged couples, necessarily require a smaller income in most cases than middle-aged farmers with growing families. Therefore, it would be reasonable to expect these operators to be content on much smaller units.

The adjustment which appears to be necessary in this area may be considerably modulated when all special family situations are considered. As pointed out above, about 30 percent of the operators may be adequately situated from the standpoint of size of farm. This conclusion is based on the fact that these operators are either bachelors or childless couples. There are undoubtedly additional circumstances which should receive consideration. It is only possible in this report to set up guide posts to assist in a general way in carrying out a program of adjustment. Many details must receive separate consideration and are necessarily beyond the scope of this study.